



# The Bulletin 366

The Royal Society of New South Wales

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May 2013

## Future Events

Lectures in Sydney are held on the first Wednesday of the month at 6:30pm.

### June

**Thursday 6 June 2013**

**6:00 pm for 6:30 pm**

**Royal Society of NSW Forum 2013**

**“Maths and science education in Australia – is there a crisis?”**

Prof. Brian Schmidt, Prof. Steven Schwartz, Prof. Merlin Crossley & Ms Judith Wheelden AM. Moderated by Andrew Funnell of Radio National.

\$5 members / \$10 Powerhouse Museum members / \$15 non-members

Registration essential, must be online/email. Contact office for assistance.

[REGISTER HERE](#)

*Coles Theatre*

**Powerhouse Museum**

*500 Harris Street, Ultimo*

Details at right.

### July

**Wednesday 3 July 2013**

**6:00 pm for 6:30 pm**

**1211th OGM**

**Speaker tba**

*Union, University & Schools Club*

*25 Bent St, Sydney CBD*

### Southern Highlands Branch

**Thursday 27 June 2013**

**6:15 pm for a 6:30 pm start**

**“Household Sustainability; Challenges and Dilemmas in Everyday Life”**

Delivered by Prof Chris Gibson

*Performing Arts Centre Chevalier College, Burradoo; Entrance off Charlotte Street.*

6 June 2013

## Royal Society of NSW Forum 2013

### Maths and science education in Australia – is there a crisis?

**Powerhouse Museum, 500 Harris St. Ultimo; 6:00 for 6:30 pm.**

There is a perception in Australia that maths and science education is at crisis point. Universities and other tertiary institutions are concerned that the entry standards into maths and science-based courses has slipped over the last couple of decades and that this has serious implications for the Australian economy. In the 21st century our world is saturated by technology. Unless Australia can maintain a strong science and technology focus, we will slip behind the rest of the world in the extent to which this can be utilised.

The Royal Society of NSW Forum 2013 will consider this critical issue. A distinguished panel consisting of Nobel Prize winner Brian Schmidt, former Macquarie University Vice Chancellor Steven Schwartz, Dean of Science at University of NSW Merlin Crossley and former principal of Queenswood School for Girls and Abbotsleigh, Judith Wheeldon will consider the important issues underlying maths and science education in Australia. The forum will be moderated by Anthony Funnell of the ABC's Radio National and later broadcast on *Big Ideas*.

Will this really be a problem for innovation in Australia? Is it a matter of basic education? Is it poor teaching? Is there a fundamental aversion to maths and science in Australia? Given our reliance on technology, why is there not a greater desire to utilise it and to develop it? Is there a “science literacy” problem in Australia? Why have we become passive about science and technology, rather than embracing it at its fundamental levels?

If you would like to be part of the audience at this important event and participate in the discussion, please register at the Society's website. Refreshments will be served prior to the Forum.



### Patrons of The Royal Society of NSW

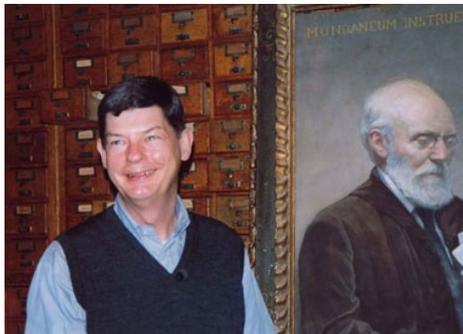
Her Excellency Ms Quentin Bryce AC CVO, Governor-General of the Commonwealth of Australia

Her Excellency Professor Marie Bashir AC CVO Governor of NSW

# Report on the 1210th Ordinary General Meeting

Held on Wednesday, 6 June 2013

## In an Analogue World, Envisioning the Digital Future: Paul Otlet, a Forgotten forefather of Today's Information Society



Professor Rayward with the card index of the Mundaneum and portrait of Otlet.

Emeritus Professor Boyd Rayward gave a fascinating talk about someone, whom he styled as 'forgotten', but in reality had never been heard of by most members of the audience, the Belgian Paul Otlet (1868 – 1944). A lawyer by profession, an activist for peace in the very troubled times of Europe in the first half of the 20 c, Otlet had the revolutionary idea of collating and indexing all knowledge in a way that could

be augmented, updated and proliferated world wide. As new technology came along (telegraph, telephone, radio, etc) he embraced each into his universal knowledge network.

In 1910, Otlet and Henri La Fontaine first envisioned a "city of knowledge", which Otlet originally named the "Palais Mondial" ("World Palace", later called the Mundaneum), that would serve as a central repository for the information, and "radiate knowledge to the rest of the world". The many world cities that were designed, were mostly never built, and Otlet's own offices were closed down by the Belgian Government in 1934.

His well-known (until recently) legacy, was the invention of the 3 x 5 inch standard index card, found in every library until the modern computer era. There were 15 million of them in the Mundaneum before it closed in 1934. There are just over 30.2 million pages in Wikipedia as of 21 May, 2013.

A museum was opened in Mons, Belgium as a kind of recreation of the Mundaneum and repository of the papers of Otlet (and La Fontaine). Professor Rayward divides his time between Belgium, Illinois (where is professor emeritus) and Sydney, and continues to research into the life of this amazing and far sighted man of the world.

**E**meritus Professor Brynn Hibbert

### End of Financial Year Reminder

Now is a great time to consider supporting the Society financially as it is near the end of the current financial year.

All donations to the Society's Library fund and Scholarship fund are tax deductible.

Please see separate form or contact Emma in the Society's office:

royalsoc@royalsoc.org.au 02 9036 5282, 121 Darlington Rd , Darlington NSW 2006

### New Members of the Society

We welcome the following new members to the Society:

- Malcolm Binns
- Andrew Carr

For information about membership please contact the Society's office or visit the Society's website or contact Emma at [royalsoc@royalsoc.org.au](mailto:royalsoc@royalsoc.org.au)

We encourage members to introduce new members to the Society.

### Royal Society of NSW Ties

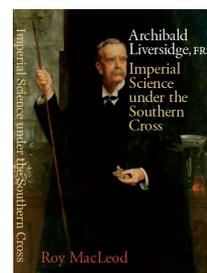


Every purchase helps support the Society and may increase your personal style to the next level of excellence.

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### Who was Liversidge?

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# From the President



During May, the Events Committee finalised the programme for the rest of the year. The next major event is the Royal Society of NSW Forum 2013 that will be held at the Powerhouse Museum on the evening of Thursday 6 June. We are most fortunate that Professor Brian Schmidt AC

FRSN, the 2011 Nobel Prize winner for physics is available to participate on our panel joined by Professor Steven Schwartz, former Vice Chancellor of Macquarie University and Professor Merlin Crossley, a distinguished biologist and Dean of Science at University of NSW and Ms Judith Wheeldon AM, former Principal of Queenwood School and Abbotsleigh. They will discuss the topic: "Maths and science education in Australia – is there a crisis?". The forum will be moderated by Anthony Funnell of the ABC's Radio National and broadcast on Big Ideas.

There is a perception in Australia that maths and science education is at crisis point. Universities and other tertiary institutions are concerned that the entry standards into maths and science-based courses has slipped over the last couple of decades and that this has serious implications for the Australian economy. In the 21st century, our world is saturated by technology. Unless Australia can maintain a strong science and technology focus, we will slip behind the rest of the world in the extent to which this can be utilised. Please bring your friends and engage with the distinguished

panel the Society has assembled at the Coles Theatre, Powerhouse Museum, 500 Harris Street, Ultimo, on Thursday 6 June from 6:00 pm.

The full programme for the rest of 2013 is available on the web-site. There are two events that are of particular note. First is "How numbers came to rule the world: Luca Pacioli, Leonardo da Vinci and the merchants of Venice on Wall Street" that will be presented in conjunction with the Powerhouse Museum. The speaker is Jane Gleeson-White, one of Australia's best emerging women writers and who gave the prestigious keynote address to the 2012 Emerging Writers Festival in Sydney. This is a fascinating exploration of the impact of mathematics, originally developed during the Renaissance, on modern life. This will also be held at the Coles Theatre, Powerhouse Museum, 500 Harris Street, Ultimo on Wednesday 7 August.

Second is "An evening with Peter Doherty", an intimate discussion with Professor Peter Doherty AC, winner of the Nobel Prize in Physiology or Medicine to be held on Thursday 15 August at our CBD venue, Union Universities & Schools Club. Put it in your diary!

Just a reminder to encourage your friends and acquaintances to consider joining the Society – we can achieve much more with a vibrant, growing membership base. Nomination forms can be downloaded from the website.

**D**onald Hector

## The AIP NSW Branch 2013 Postgraduate Awards, AGM, guest speaker and Annual Dinner

2 - 10pm Tuesday 19 November

- 2 – 6pm: Student presentations (Slade Lecture Theatre, University of Sydney)
- 6 – 6.30pm: AGM (Slade Lecture Theatre, University of Sydney)
- 6.35pm: Guest speaker Professor Martin Green: "The Physics of High Efficiency Photovoltaic Solar Energy Conversion". (Slade Lecture Theatre, University of Sydney)
- 8 – 10pm: Annual dinner at the Buon Gusto – booking and pre-payment required by Friday 8 November 2013.

Each New South Wales University is invited to nominate one student to compete for the \$500 prize and Postgraduate medal. The Royal Society of NSW will also award the Jak Kelly Scholarship prize of \$500 as a separate award category for this event.

Students are asked to make a 20-minute presentation on their postgraduate research in Physics, and the presentation will be judged on the criteria: (1) content and scientific quality, (2) clarity and (3) presentation skills.

Students nominated for the awards will also be invited as guests for the NSW AIP Branch annual dinner that follows the presentations. These awards have been created to encourage excellence in postgraduate work, and all nominees who participate in the Postgraduate Awards Day will receive a special certificate recognising the nominee's high standing.

This event is proudly sponsored by the Australian Institute of Physics, the Royal Society of New South Wales and the CSIRO. Your support of a student nomination is very important by Friday 11th October 2013. Please email the title and abstract of your nominated student presentation by Friday 11th October 2013 to the Awards Day Coordinator: Dr Frederick Osman at [fred\\_osman@exemail.com.au](mailto:fred_osman@exemail.com.au)

# Southern Highlands Branch

## Report of April Meeting 2013

### “Managing extreme weather and climate impacts: Fiddling while Rome burns ”

Presented by Dr Andrew Ash, Director, CSIRO Climate Adaptation National Research Flagship

Dr Andrew Ash works closely with government agencies, businesses and communities, raising awareness of the need to adapt to unavoidable climate change. He oversees a nationwide portfolio of research projects, partnerships and collaborations. Dr Ash has a keen interest in better integrating our understanding of climate science with decision-making and developing ways to mainstream climate adaptation into policy and industry. Throughout his career, a feature of Andrew's research has been a systems approach that strives to examine both biophysical and management aspects of environmental sustainability.

Australia is a continent beset by climatic extremes – of droughts and flooding rains. There is a perception that we have adapted well to this climatic variability. However, drought, bushfires, floods and cyclones cause significant disruption to the economy, to the communities they affect and to livelihoods. Moreover, our settlement patterns mean that risk and exposure has been growing over the last few decades. Climate change will exacerbate these risks. In this presentation, Dr Ash examined these risks, and outlined how Australians can better adapt to climate variability and change. He also identified the cognitive and institutional barriers to change.

Adaptations our society has made to reduce risks associated with variable climatic conditions have involved changes to our building codes, emergency management and information dissemination. Dr Ash chose Innisfail in Far North Queensland to demonstrate the effectiveness of these adaptations. When a category 5 cyclone hit Innisfail in 1918, there were only 12 houses left standing and the death toll was approximately 75-100 deaths. In the recent category 5 cyclone Yasi which struck near Innisfail in 2011, there was only one cyclone-related death. Despite our reactive adaptations, or perhaps because of them, disasters are still costing the nation billions of dollars in natural disaster relief and recovery arrangements. In 2010-11, the cost was \$6116bn and for the following year \$3204bn.

The average wheat yield in WA was held up as an example of an adaptation to climate change in Australia agriculture. From 1940-1970, the average rainfall was 283mm falling to an average of 250mm in the following 40 years. Due to the adaptation of introducing new wheat varieties over these years, producers were able to more than double the average wheat yield per hectare during the drier years. There is only a certain amount of improvement that can be achieved this way however.

Dr Ash emphasized the huge problems many of our cities now face because local councils in the past have allowed so much development in flood prone areas. Present owners of these properties, fearing falls in their property valuations, are now voicing opposition to any moves to have their ownership documents annotated that the property may be subject to flooding. Most councils are heavily engaged in sophisticated flood studies to examine both biophysical and management aspects of the problem.

Regarding South East Queensland, Dr Ash described the situation as “the perfect storm in waiting”. In 1946, there were approximately 500000 residents. Today there are 3.3 million people. The frequency of cyclones crossing the coast must be considered a changing risk to be urgently addressed.

The lecture was followed by a long question session from the 45- person audience. Dr Ash agreed to deliver a future lecture to expand further on new systems under development to mainstream climate adaptation into policy and industry.

**A** nne Wood

#### Contact your office bearers

<b>Dr Donald Hector President</b>	<b>02 9484 9007</b>	<b>Em. Prof Heinrich Hora Vice President</b>	<b>02 4627 7769</b>
<b>Mr John R Hardie Vice President</b>	<b>02 9036 5282</b>	<b>Em. Prof D. Brynn Hibbert Vice President</b>	<b>02 9398 9134</b>
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<b>Mr Hub Regtop (SHB rep)</b>	<b>02 4886 4199</b>	<b>Dr William Kneprath</b>	<b>02 9581 6000</b>
<b>Professor Richard Banati</b>	<b>0408 121 362</b>	<b>Mr David Beale</b>	<b>02 9036 5282</b>
<b>Em. Professor Roy MacLeod</b>	<b>02 9036 5282</b>		

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